



Standard Specification for Electrodeposited Coatings of Zinc Cobalt Alloy Deposits¹

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1. Scope

1.1 This specification covers the requirements for electrodeposited zinc cobalt alloy coatings on metals.

1.2 The following precautionary caveat pertains to the test method portion only, Section 8, of this specification: *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

- B 117 Practice for Operating Salt Spray (Fog) Apparatus²
- B 183 Practice for Preparation of Low-Carbon Steel for Electroplating³
- B 242 Practice for Preparation of High-Carbon Steel for Electroplating³
- B 320 Practice for Preparation of Iron Castings for Electroplating³
- B 322 Practice for Cleaning Metals Prior to Electroplating³
- B 374 Terminology Relating to Electroplating³
- B 487 Test Method for Measurement of Metal and Oxide Coating Thickness by Microscopical Examination of a Cross Section³
- B 499 Test Method for Measurement of Coating Thicknesses By the Magnetic Method: Nonmagnetic Coatings on Magnetic Basis Metals³
- B 504 Test Method for Measurement of Thickness of Metallic Coatings by the Coulometric Method³
- B 507 Practice for Design of Articles to Be Electroplated on Racks³
- B 568 Test Method for Measurement of Coating Thickness by X-Ray Spectrometry³
- B 571 Test Methods for Adhesion of Metallic Coatings³
- B 602 Test Method for Attribute Sampling of Metallic and Inorganic Coatings³

B 697 Guide for Selection of Sampling Plans for Inspection of Electrodeposited Metallic and Inorganic Coatings³

B 762 Method of Variables Sampling of Metallic and Inorganic Coatings³

B 849 Specification for Pretreatments of Iron or Steel for Reducing Risk of Hydrogen Embrittlement³

B 850 Specification for Post-Coating Treatments of Iron or Steel for Reducing Risk of Hydrogen Embrittlement³

D 3951 Practice for Commercial Packaging⁴

3. Terminology

3.1 *Definitions*—Many terms used in this specification are defined in Terminology B 374.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *significant surface, n*—that portion of a coated article's surface where the coating is required to meet all the requirements of the coating specification for that article. Significant surfaces are usually those that are essential to the serviceability or function of the article or can be a source of corrosion products or tarnish films that interfere with the function or desirable appearance of the article. Significant surfaces are those surfaces that are identified by the purchaser by, for example, indicating them on an engineering drawing of the product or marking a sample item of the product.

4. Classification

4.1 There is one coating class, and it is defined as Class 1—deposits having 99 mass % zinc, the balance being cobalt.

4.2 There are five coating types and they are defined as follows:

4.2.1 Type a—With colorless (blue bright) chromate conversion coatings.

4.2.2 Type b—With yellow chromate conversion coating.

4.2.3 Type c—With bronze chromate conversion coating.

4.2.4 Type d—With black chromate conversion coating.

4.2.5 Type e—Any of the above types plus organic topcoat.

NOTE 1—Whereas colored chromate conversion coatings are usually meant to include various shades of yellow to bronze when used with non-alloyed zinc, yellow and bronze chromate conversion coatings are considered distinctly different when applied to alloyed zinc coatings and are formulated specifically to produce the desired coating.

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² Annual Book of ASTM Standards, Vol 03.02.

³ Annual Book of ASTM Standards, Vol 02.05.

⁴ Annual Book of ASTM Standards, Vol 15.09.